

# Panel 1 - Current Gas Quality Standards and Specifications

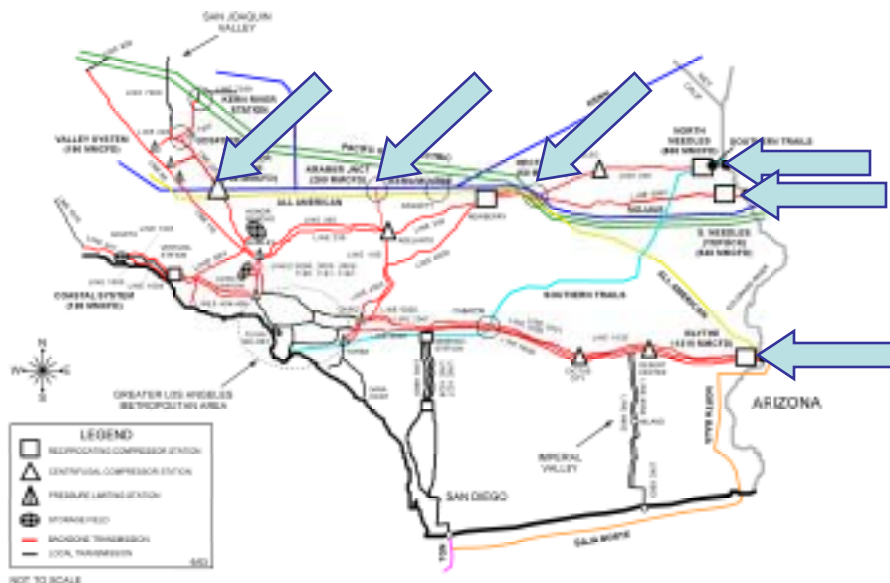
Natural Gas Quality Standards Workshop  
February 17-18, 2005

Lee Stewart - Senior Vice President  
SDG&E/SoCalGas

# SDG&E / SoCalGas Current Gas Supplies

## Gas Supply Characteristics

- **Interstate Gas Supplies:**
  - 88% of total supply (2.2Bcf/d)
  - 6 Receipt Points
  - Primarily Rockies & San Juan Basin
- **California Gas Supplies:**
  - 12% of total supply (0.3 Bcf/d)
  - 60 Delivery Points
  - Multiple small suppliers
- **Markets Served:**
  - Service Territory: 27,000 sq. mi.
  - Customers: 5.8 million



# SDG&E / SoCalGas

## Potential LNG Supplies

### Proposed LNG Projects

- **Baja Mexico:**
  - ChevronTexaco (1.4 Bcf/d)
  - Sempra / Shell (1.0 Bcf/d)
- **Long Beach**
  - Mitsubishi (0.7 – 1.0 Bcf/d)
- **Offshore Ventura/Oxnard**
  - BHP Billiton (0.8 Bcf/d)
  - Crystal Energy (1.0 Bcf/d)

*Reference: Gas Daily 1/27/04*



# Current Gas Quality Standards

## SoCalGas Rule 30

- Heating Value: 970 Btu/cf Min  
1150 Btu/cf Max
- Carbon Dioxide: 3% Max
- Oxygen: 0.2% Max
- Inerts:
  - CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>: 4% Max
- Interchangeability:
  - Meet AGA Bulletin 36 interchangeability indices relative to typical gas in system

## CARB NGV Fuel Spec.

- Hydrocarbons:
  - Methane: 88% Min
  - Ethane: 6% Max
  - C3+: 3% Max
  - C6+: 0.2% Max
- Inerts:
  - CO<sub>2</sub> + N<sub>2</sub>: 1.5% Min  
4.5% Max

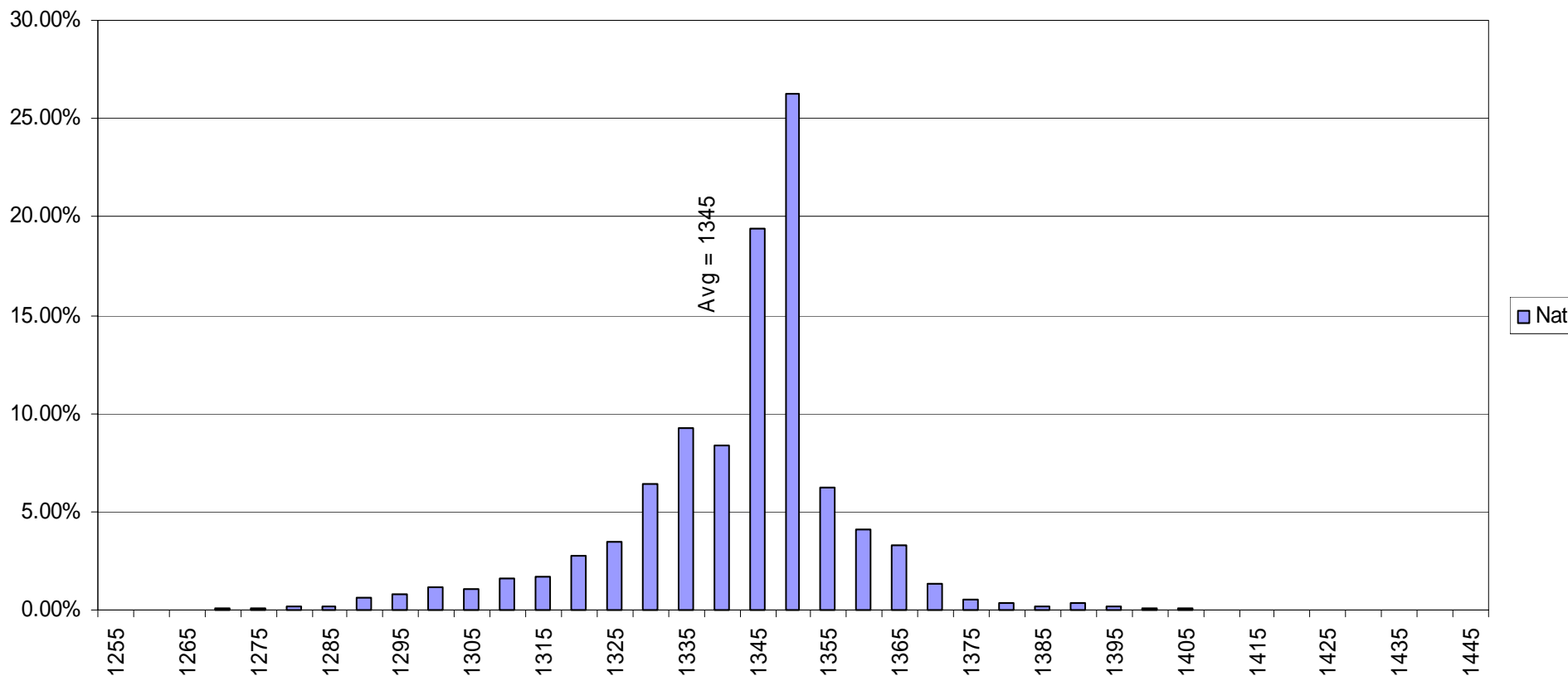
# Gas Quality Comparison

	<b><u>System Average</u></b>	<b><u>California Production*</u></b>	<b><u>Potential LNGs</u></b>
• Heating Value(Btu/cf)	1020	1007 - 1150	1063 – 1166
• Wobbe Index:	1332	1283 – 1431	1373 – 1446
• Carbon Dioxide:	1.25%	.09 – 3.00%	Trace
• Air (N <sub>2</sub> , O <sub>2</sub> ):	0.7%	.12 – 3.15%	Trace
• Total Inerts:	1.95%	.34 – 4.00%	Trace
• Methane:	95.4%	84 – 99%	83.2 – 91.2%
• Ethane:	2.1%	.13 – 10%	4.3 – 13.2%
• C3+:	0.5%	.02 – 7.1%	2.2 – 5.0%
• C6+:	Trace	Trace - .48%	Trace

\* Acceptable Under Rule 30 into SCG System

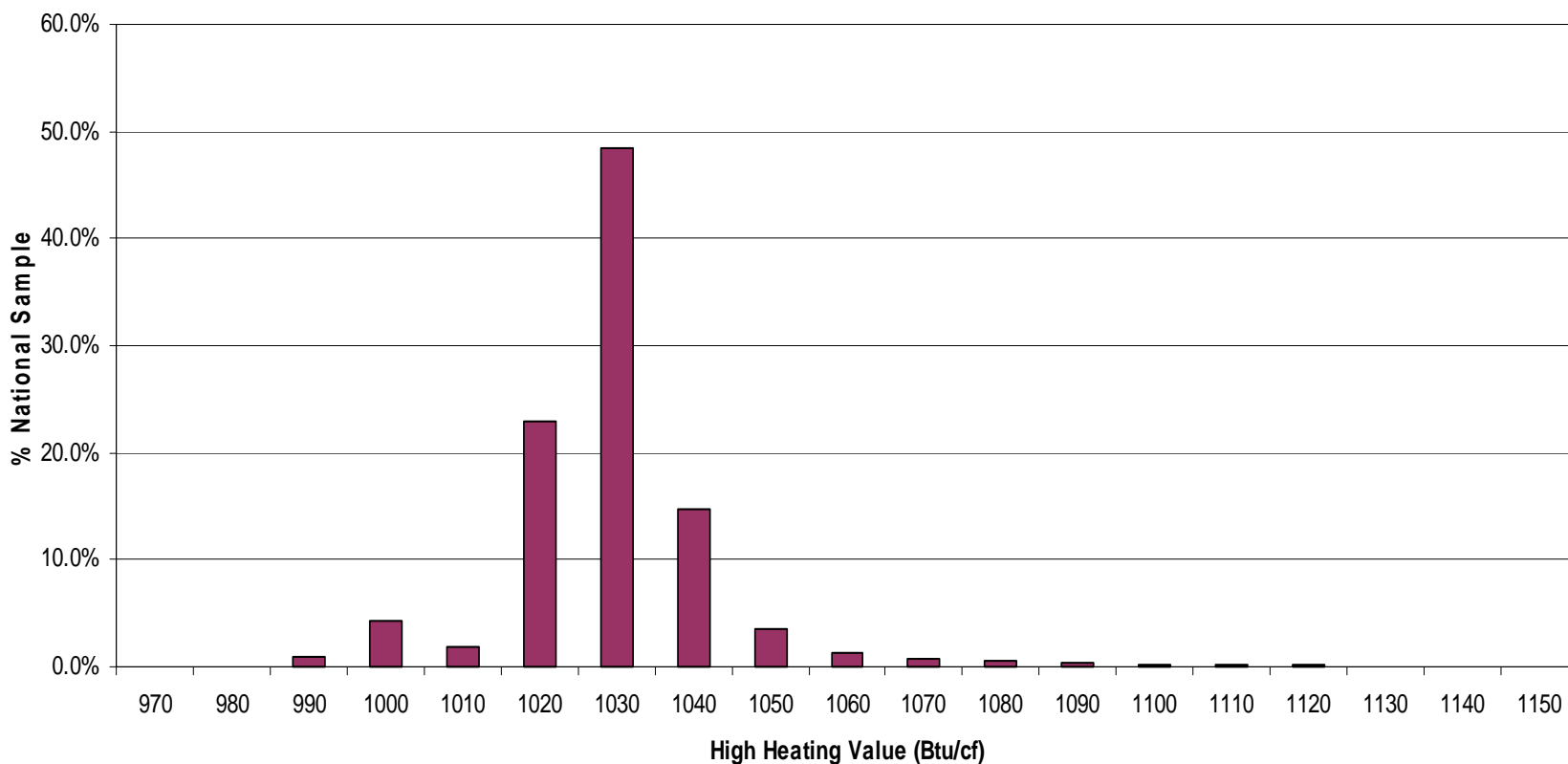
# Gas Quality Delivered on Interstate Transmission System (Wobbe Number)

GRI92/0123 Frequency Distribution Weighted National Sample with O<sub>2</sub><1%  
Wobbe Number



# Gas Quality Delivered on Interstate Transmission System (HHV)

GRI92/0123 National Sample with O<sub>2</sub><1% and LNG  
High Heating Value Ranges



## Summary of Recommendations

---

As discussed today and tomorrow by SDG&E/SoCalGas, we recommend that:

- SDG&E/SoCalGas tariff rules be changed to incorporate research regarding Wobbe Number
- CARB specification be changed to MN 80 standard
- CARB MN 80 standard be progressively lowered **on a regional basis** to reflect engine research, retrofits, and/or replacements
- These actions will help ensure that California standards do not discourage introduction of new gas supplies
- Agencies should work with stakeholders to make further changes to gas quality standards as warranted